Claims 1-21 are pending. Claims 1, 4, 7, 10 and 14 have been amended. Applicant requests reconsideration and reexamination of the pending claims.

Rejections under 35 U.S.C. 112, first and second paragraph:

Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter not described in the specification.

The Examiner has stated that the term "molecular ratio" is not described in Applicant's specification. Although molecular ratios are inherent in the use of gases to determine partial pressures, to expedite the prosecution of the application, Applicant has removed "molecular ratio" and added --partial pressure--. The term partial pressure is supported throughout the specification.

The Examiner has stated that the "specification also does not disclose removing the wafer while the chamber is at the processing temperature." The Examiner then assumes that the wafer is at processing temperature when removed.

Applicant submits that if the wafer is at processing temperature then the process chamber is also at processing temperature. If the process chamber were allowed to cool then cooling of the wafer would occur simultaneously. Thus, if it is assumed that the wafer is at a processing temperature then the process chamber must also be at that temperature. Accordingly, Applicant requests that the rejections under 35 U.S.C. 112, paragraphs one and two with regard to this issue be removed. Claim 1 is therefore in condition for allowance.

Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

To make Claim 14 definite, Applicant has replaced the term "pulling" with the term - establishing as the Examiner has recommended.

Claims 11 and 14 include "heating a process chamber to a steady-state processing temperature" but do not include a limitation requiring that a wafer be removed while at that temperature. Applicant submits that no essential steps are omitted. Accordingly, Claims 11 and 14 are in condition for allowance.

Rejection under 35 U.S.C. 102

Claims 1-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Wolf, Silicon Processing for the VLSI Era, vol. 1-Process Technology: pp. 164-165, 169-178, 182-4, 194,

LAW OFFICES OF
MACPHERSON KWOK CHEN
& HEID LLP

2402 Michelson Drive
Suite 210
Irvine, CA 92612
(949) 752-7040
FAX (949) 752-7049

and vol. 2-Process Integration: pp. 331, 431, 434-5. Applicant respectfully traverses the rejection as follows.

Claim 1 sets forth, *inter alia*, a method including "adjusting said first partial pressure to a second partial pressure; and unloading the semiconductor wafer from said process chamber, while said process chamber remains at said steady-state processing temperature and while said internal environment is at said second partial pressure." Applicant could find no teaching or suggestion in Wolf that discloses adjusting partial pressures operating a process chamber in such a method.

The present invention includes the unloading a semiconductor wafer from a process chamber at the same steady-state temperature as experienced during processing. In most processing applications, the processing temperature is reduced before the wafer is removed from the processing chamber, so that the cooling facilitates ending the processing reactions.

In Claim 1, the method includes adjusting the partial pressure of the reactive gas relative to the overall internal pressure of the process chamber. In this way, processing reactions cease because the partial pressure of the reactive gas is not adequate to maintain the reactions. Accordingly, no variation in the steady-state temperature of the process chamber is necessary to cause processing reactions to cease.

Applicants reiterate that Wolf provides disclosure regarding wafer processing in general, but fails to anticipate the method set forth in Claim 1. Although, Applicant has amended Claim 1, it has been done only to clarify the method of the present invention and not to narrow Claim 1 in view of Wolf. Accordingly, Claim 1 is allowable over the cited references.

Claims 11 and 14 set forth a method including introducing a process gas at a first partial pressure into the process chamber and adjusting or varying the first partial pressure to a second partial pressure, followed by removal of the wafers while the process gas is at the second partial pressure.

For reasons similar to those mentioned with regard to Claim 1, Applicant could find no teaching or suggestion in Wolf that anticipates the method set forth in Claims 11 and 14. Accordingly, Claims 11 and 14 are allowable over the cited references.

Claims 2-10 depend from Claim 1 and are therefore allowable for at least the same reasons as Claim 1. Claims 12 and 13 depend from Claim 11 and are therefore allowable for at least the same reasons as Claim 11. Claims 15-21 depend from Claim 14 and are therefore allowable for at least the same reasons as Claim 14.

LAW OFFICES OF
MACPHERSON KWOK CHEN
& HEID LLP

2402 Michelson Drive
Suite 210
Irvine, CA 92612
(949) 752-7040
FAX (949) 752-7049

CONCLUSION

For the above reasons, pending Claims 1-21 are now in condition for allowance and allowance of the application is hereby solicited. If the Examiner has any questions or concerns, the Examiner is hereby requested to telephone Applicant's Attorney at (949) 752-7040.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231, on February 6, 2003.

Sandy Kim — February 6, 2003 Date of Signature

Respectfully submitted,

Theodore P. Lopez
Attorney for Applicant(s)
Reg. No. 44,881

LAW OFFICES OF
MACPHERSON KWOK CHEN
& HEID LLP

2402 Michelson Drive
Suite 210
Irvine, CA 92612
(949) 752-7040
FAX (949) 752-7049

ATTACHMENT A

1. (Twice Amended) A method for forming a thin film on a semiconductor wafer comprising:

heating an internal environment of a process chamber to a steady-state processing temperature;

loading a semiconductor wafer into said internal environment of said process chamber;

introducing a reactive gas into said internal environment of said process chamber with said reactive gas at a first partial pressure **[molecular ratio]** relative to a chamber pressure **[molecular content]** of said internal environment;

adjusting said first partial pressure **[molecular ratio]** to a second partial pressure **[molecular ratio]**; and

unloading the semiconductor wafer from said process chamber, while said process chamber remains at said steady-state processing temperature and while said internal environment is at said second partial pressure **[molecular ratio]**.

4. (Twice Amended) The method of Claim 1, wherein said adjusting of said first partial pressure **[molecular ratio]** to said second partial pressure **[molecular ratio]** comprises introducing an inert gas into said internal environment, wherein said second partial pressure **[molecular ratio]** between said reactive gas and said inert gas causes said reactive gas to be at a preselected partial pressure.

7. (Twice Amended) The method of Claim 4 **[1]**, wherein said preselected partial pressure of said inert gas **[reactive gas]** is between 0.1 Torr and 760 Torr.

10. (Twice Amended) The method of Claim 1, wherein said adjusting includes introducing N_2 into said internal environment to reduce said first partial pressure **[molecular ratio]** to said second partial pressure **[molecular ratio]**.

14. (Twice Amended) A method of forming a thin film on a semiconductor wafer comprising:

heating a process chamber to a steady-state temperature;

establishing **[pulling]** a first pressure in said process chamber;

LAW OFFICES OF
MACPHERSON KWOK CHEN
& HEID LLP

2402 Michelson Drive
Suite 210
Irvine, CA 92612
(949) 752-7040
FAX (949) 752-7049

loading at least one semiconductor wafer into said process chamber while said process chamber is at said first pressure;

introducing a process gas at a first partial pressure relative to said first pressure into said process chamber to allow processing of said at least one semiconductor wafer to commence;

varying said first partial pressure to a second partial pressure which causes **[allows]** said processing of said semiconductor wafer to cease; and

removing the at least one semiconductor wafer from said process chamber while said process chamber is at said second partial pressure.

LAW OFFICES OF
MACPHERSON KWOK CHEN
& HEID LLP

2402 Michelson Drive
Suite 210
Irvine, CA 92612
(949) 752-7040
FAX (949) 752-7049